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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,251	06/08/2000	Vivek K Goyal	5	1372

7590 08/11/2004  
Ryan & Mason LLp  
90 Forest Avenue  
Locust Valley, NY 11560

EXAMINER

AZAD, ABUL K

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/590,251

Applicant(s)

GOYAL, VIVEK K

Examiner

ABUL K. AZAD

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-22, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 11 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2,3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 13-24 are rejected under 35 U.S.C 112 first paragraph, because claims recited only a single processing device (means).

A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-6, 8-10, 13, 15-18, 20-22 and 25 are rejected under 35

U.S.C. 102(b) as being anticipated by Lozach (US 5,583,963).

As per claim 1, McWhirter teaches, “a signal processing method comprising the steps of”:

“processing a signal in a signal processing device configured to implement a transform for producing a desired transformed output signal” (col. 4, lines 53-60); and

“updating the transform during the processing step based on received data associated with the signal being processed, so as to track a basis associated with the transform” (col. 23, lines 53-66);

“wherein the transform is represented in a reduced-parameter form and the updating step is implemented using computations involving the reduced-parameter form” (col. 23, lines 53-66).

As per claim 3, McWhirter teaches, “wherein the reduced-parameter form for an  $N \times N$  transform comprises fewer than  $N^2$  parameters” (col. 23, lines 53-66).

As per claim 4, McWhirter teaches, “wherein an adaptation of the transform is represented directly as one or more changes in the reduced-parameter form” (col. 23, lines 53-66).

As per claim 5, McWhirter teaches, “wherein the reduced-parameter form comprises a Givens parameterized form” (col. 23, lines 53-66).

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As per claim 6, McWhriter teaches, "wherein the updating step utilizes Multiplications of Givens parameterized matrices computed in parametric form" (col. 23, lines 53-66).

As per claim 8, McWhriter teaches, "wherein the updating step avoids the need for an explicit eigendecomposition operation in implementing the transform" (col. 4, lines 25-30).

As per claim 9, McWriter teaches, "wherein the updating step makes adjustments in the transform so as to minimize a negative gradient of a pairwise energy compaction property of the transform" (col. 4, lines 36-44 and col. 7, lines 8-40).

As per claim 10, McWriter teaches, "wherein the negative gradient minimization is locally convergent in mean for a specified step size" (col. 9, lines 11-25).

As per claim 12, McWriter teaches, "wherein the transform comprises a backward adaptive transform and the updating step is driven by quantized data" (col. 25, lines 5-54).

As per claims 13, 15-18, 20-22 and 24-25, they are interpreted and thus rejected for the same reasons set forth in the rejection of claim 1, 3-6, 8-10 and 12.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 7, 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over McWhirter et al. (US 5,018,065) as applied to claims 1 and 13 above, and further in view of Lozach (US 5,583,963).

As per claims 2 and 14, McWhirter does not explicitly teach, "wherein the transform comprises a Karhunen-Loeve transform". However, Lozach teaches "wherein the transform comprises a Karhunen-Loeve transform" (col. 1, lines 32-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Karhunen-Loeve transform in the invention of McWhirter because Lozach teaches it is proven that the mean square error of Karhunen-Loeve transform is less than that of any other transform for a given order of modeling K, this transform being, in this sense, optimal (col. 1, lines 64-67).

As per claims 7 and 19, McWhirter does not explicitly teach, "wherein the reduced-parameter form comprises a Householder form". However, Lozach teaches, "wherein the reduced-parameter form comprises a Householder form" (col. 11, line 26 to col. 12, line 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Householder form in the invention of McWhirter because Lozach teaches by using this transform, it is possible to reduce the complexity of the computations (col. 11, lines 3—31).

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***Allowable Subject Matter***

7. Claims 11 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(703) 305-3838**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richemond Dorvil**, can be reached at **(703) 305-9645**.

Any response to this action should be mailed to:

**Commissioner for Patents**

**P.O. Box 1450**

**Alexandria, VA 22313-1450**

Or faxed to:

**(703) 872-9314**

(For informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to 2121 Crystal Drive,  
Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center's Customer Service Office at telephone number **(703) 306-0377**.

A handwritten signature in black ink, appearing to read 'A.K. Azad', with a stylized flourish at the end.

Abul K. Azad

August 5, 2004